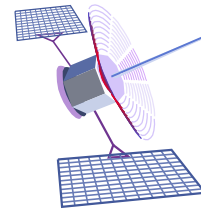
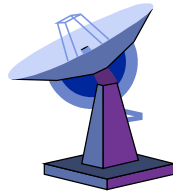
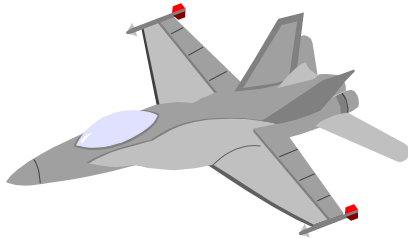




Weather

STAFF METEOROLOGIST'S HANDBOOK



STAFF METEOROLOGIST'S HANDBOOK



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MEMORANDUM FOR NEWCOMERS

SUBJECT: Welcome

By virtue of your selection for this assignment, you are acknowledged as a skilled and dedicated professional with a record of outstanding performance. We are convinced you will find your assignment rewarding, meaningful and challenging. As we move through this period of constrained budgets and manpower reductions, your role as a Staff Meteorologist (Staffmet) becomes even more critical to the success of AFMC's mission. You are in a position where your efforts can affect million-dollar decisions for new weapons systems and technologies--and in many cases will have impacts for decades. That's why the command does its best to be selective in the staffmet selection process.

A Staff Meteorologist is a warrior, a consultant, a diplomat, a detective, and a scientist all rolled into one. Your duty is to function as part of the AFMC acquisition team--at an AFRL lab, a product center or at a test range--to ensure that the weapons systems provided to the war fighting commands are the best available. Therefore you must have field experience (warrior), be able to identify creative solutions (consultant), mediate conflicting interests (diplomat), discover problem areas and solutions to often complex situations (detective), and ensure that sound scientific technology is used in the design and acquisition of weapons systems (scientist). Our efforts must be effective!

This is in all probability your first assignment as a Staff Meteorologist. Unfortunately, you were not issued an infallible pool of knowledge with your orders. This guide is designed to get you started down the path of success. However, it is not meant to be an exhaustive resource. Where appropriate, we reference publications which provide more detailed information in the areas of importance to you. Your unit may have an orientation program similar to that found at Appendix 1.

We would appreciate your feedback on this guide to ensure that it is relevant, accurate, and interesting. It is written for your benefit; your suggestions and constructive criticisms will be seriously considered in future versions of this publication.

Once again, welcome.



Section 1

MISSION OF AFMC AND THE STAFFMET ROLE

MISSION STATEMENT OF AFMC

Through integrated management of research, development, test, acquisition and support, we advance and use technology **to acquire and sustain superior systems** in partnership with our customers and suppliers. We perform continuous product and process improvement throughout the life cycle. As an integral part of the Air Force War Fighting Team, we contribute to affordable combat superiority, readiness, and sustainability.

MISSION STATEMENT OF AFMC WEATHER DIVISION (AFMC/DOW)

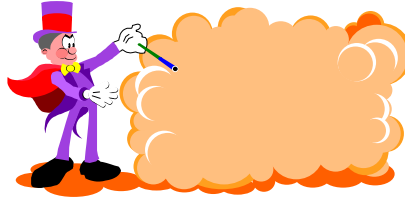
Provides policy, technical oversight and unit assistance for weather support to flying operations, weather resource protection at AFMC bases, and acquisition meteorological support to AFMC product centers, test centers, and the Air Force Research Laboratory. Coordinates and validates requirements for all meteorological equipment, data, and software on AFMC bases and ranges. Oversees, validates, and advocates resource requirements for command weather support. Provides AFMC weather readiness oversight and contingency management. Functional manager for the officer, enlisted and civilian weather career fields in AFMC.

AFMC fulfills its mission of equipping the Air Force with the best weapons systems through a "cradle-to-grave" management of USAF systems and technologies. The phrase "cradle-to-grave" means that AFMC is responsible for the management of a given weapons system from its "birth" during the research and development phase to its "death" when it is retired from the Air Force inventory. To fulfill this integrated weapons system management (IWSM) mission, AFMC is organized into Air Force Research Laboratory technical directorates (research), product centers (development and acquisition), test centers (test and evaluation) and logistics centers (sustainment). In addition, AFMC retains management responsibility for some "retired" systems (e.g., aircraft, missiles) at Davis-Monthan AFB.



RESEARCH & DEVELOPMENT--TEST--ACQUISITION--DEPLOYMENT--MODIFICATION--RETIREMENT
CRADLE-----> GRAVE
LABORATORIES PRODUCT CENTERS MAJCOMS ALCS DAVIS-MONTHAN AFB

ROLE OF THE STAFF METEOROLOGIST



The mission of the Staff Meteorologist is to:

- 1) Assist AFRL, the Product Centers, and the Test Centers in the design, development, acquisition and testing of new weapons systems, and
- 2) Provide information through the TPIPT process to ensure AFW capabilities to support future USAF weapons systems are developed and maintained.
- 3) Assist the MAJCOMs in preparing for these new systems.

Your role as Staff Meteorologist is to function as a member of the AFMC R & D, Acquisition, and Test Team at your base to **ensure environmental concerns are considered throughout the life cycle** of an Air Force weapons system. Under the Integrated Weapons System Management (IWSM) concept, Integrated Product Teams (IPTs) are formed to support the acquisition process at labs and product centers. It is your role to get integrated into the IPTs that consider environmental issues.

Involvement in the R & D process ensures that environmental concerns are considered **early in the life of the program**, where system changes **to mitigate the environmental impact on the system or to enhance the operational capability of the system** are easy and inexpensive. Involvement in the acquisition and test phases of the program lifecycle ensure that the Air Force will get the system it is paying for and that the system will operate in the environment in which it is designed to function.

Interaction with the Air Force Weather (AFW) Technical Planning Integrated Product Team (TPIPT) process will ensure that AFW has the technology, equipment and expertise to support new environmental requirements for new USAF weapons systems.

Involvement with the MAJCOMs ensures that all environmental limitations and concerns are understood by the using command. This process **ensures that environmental requirements and constraints are considered and addressed in the employment concept of newly acquired weapons systems.**

A Staffmet's work is often self-initiated. In contrast to the typical operational support scenario where the users (customers) usually know what weather support they need and go to the weather station to get it, the Staffmet frequently has to go to potential clients and prove to them that they need meteorological or aerospace environmental support.

A Staffmet works in many different environments within the structure of AFMC, and may be known by different titles. A Staffmet working with the acquisition community may be called an acquisition meteorologist or Acqmet, one working with the test and evaluation community may be called a test meteorologist, an AFMC meteorologist assisting the research and development community may be titled as a research meteorologist. In this document and in most of the other regulations, instructions and other correspondence that HQ AFMC/DOW develops, we will use the generic term of staffmet. It doesn't matter what the title may be, the mission of the AFMC staffmet is to ensure that the US Air Force and AFMC get the best product or system to perform the mission by ensuring that environmental issues are considered in the design, development, acquisition, test and evaluation, and logistical support for the system.

Staffmets assigned to the various laboratory divisions, testing facilities, and product center have saved the US Air Force millions of dollars in R & D, Test, and Acquisition resources. Some examples of this include;

- F-16 Program Office- Staffmet analysis of world-wide temperature extremes saved \$9M/yr
- SOF Program Office- Analysis of contractor proposals avoided redesign -saved \$7M
- OTH-B Radar- Identified sensor requirement - Saved \$500K
- LANTIRN Support- Saved \$200K
- 4950th Test Wing- Sonobouy location cloud study - Saved \$1M
- Advanced Tactical Air Reconnaissance Program - Saved \$300K
- B-1 Program- Icing study - Saved \$250K

It is very important to document the value of staffmet projects to convince those who control resources not to degrade this valuable service.

Section 2

KEYS TO BECOMING A STAFF METEOROLOGIST



WHAT ARE THE KEYS TO BECOMING AN EFFECTIVE STAFF METEOROLOGIST ?

An excellent question!

Key 1: Get to know your organization.

People often are well into projects before they run into problems and realize they don't know where to go for help. First things first! Get to know the people and expertise in your own organization and the sources available to support you.

- Study the command's wiring diagram.
- Get to know the projects/programs you support by reading program documentation, etc.
- **Get out of your office** and meet the customers on their home ground.
- Attend system program office, technology directorate or division staff meetings.
- Walk the halls of the program office, organization, or directorate you are supporting.
- Become an integral part of the organization you support.
- Offer to present a briefing of your capabilities at appropriate staff and technical meetings.

Key 2: Get to know the tools of the STAFF METEOROLOGIST.



Computers



Data Bases



Contacts



Telephones



WWW Capabilities

Know the resources that you, as a staffmet, have available

- Directory of AFMC Weather Units
- AFW "Observer" Almanac Edition
- World Wide Web Information
- Electronic Newsletters
- AFRL Research Sites (Hanscom AFB)
- AFWA Tech Library
- 55th SWXS
- Air Force Battle Laboratories
- Modeling & Simulation Sites
- National Air Intelligence Center
- Almanac Edition of "Leading Edge"
- Annual AFMC Weather Conference
- AF Weather Agency (AFWA)
- AF Combat Climatology Center (AFCCC)
- HQ AFMC/DOW
- Defense Acquisition Deskbook (DAD)
- AF Combat Weather Center
- Army and Navy Research Centers
- Range Commander's Council, Met Group
- Meetings and Symposia

and **other staffmets**, to name a few.

One of the most valuable resources/assets you have is the network of other AFMC Staffmets. There are Meteorologists assigned to the AFRL Research Sites at Kirtland AFB, Rome NY, Eglin AFB, Wright-Patterson AFB, and Hanscom AFB. Other Staffmets are assigned to the Product Centers at Wright-Patterson AFB (ASC), Hanscom AFB (ESC), and Los Angeles AFB (SMC). We also have Staffmets assigned to the Test and Evaluation Mission at Eglin AFB, Edwards AFB, and Holloman AFB. These Staffmets have a wide range of experience and expertise including space environment, laser propagation, atmospheric physics, flight dynamics, materials, C2, C3 and C4I, radar and E-O propagation, and atmospheric modeling. If these Staffmets don't know the answer to your question or haven't worked this issue before, they will be able to point you in the right direction to find the answer. (See Appendix 7)

Staffmets aren't required to answer difficult questions on the spot. It's better to research the problem and come back with a good answer. You will need to know AFI 15-118, ***Requesting Specialized Weather Support*** well and be familiar with AFI 15-109, *Providing Meteorological Support to Non-Military Agencies and Foreign Governments or Individuals*.

Key 3: Get to know your job.



Spend some time walking around the pool before jumping in. You may find your job is not well defined or understood, especially if you have no overlap with your predecessor. You may find an in-box full of projects waiting for you to get started. To be effective, you must quickly learn the following (you may not get time later):

- Your job responsibilities (Appen. 1)
- Your work priorities (Appen. 2 & 4)
- The Acquisition/Planning Process (Appen. 1)
- Your points of contact
- Other MAJCOM Wx POCs
- Your key contacts in HQ AFMC/DOW

- MAJCOM MAP your org. Supports
- Language and Terminology (Appen. 5)
- Pertinent Regulations and Publications (Appen. 6)
- Security concerns
- TPIPT
- **People**

Be careful or you may end up like this poor soul:



Key 4: Get to know yourself.

No one likes to admit they need help. But inefficiency can often be rooted in stubborn self-reliance. This is especially true for the person who has never served as a Staff Meteorologist.

To be effective you must examine your:

- Strengths and weaknesses. Do you have what you need to do the job? If you don't then where can you find training or someone who can help you?
- Ability to work with others. Cooperation not confrontation is key to success.



If we don't practice teamwork to accomplish our mission, we can all end up going over the edge.

Finally, get organized. It is important to develop some internal guidelines on Staffmet support. Each Staffmet must use initiative and creativity to determine what their job requires. Reference the "Methodology for Customer Support" in Appendix 4. It is an excellent example of how to organize support to your customers.

Section 3

TRAINING

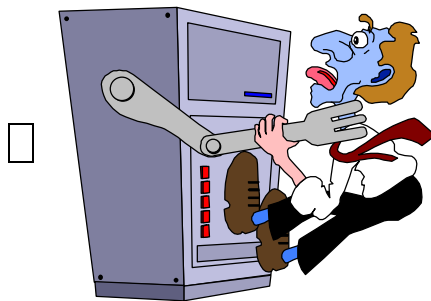
Now that you have been able to find your desk with some consistency, you may ask: **What do I need to know to do my job?** There is no simple answer to this question since each staffmet position requires a unique educational and experience level. We can not present a shopping list of specific schools and training. Instead we want to focus on the common training requirements for all staffmets. Some specific examples and sources are listed at the end of this section. These fall into three categories: Technical, Acquisition Support, and Office Automation.

a. Technical - Ask yourself (or AFMC/DOW), what technical expertise do I need to do my job? Do I need to become more knowledgeable on the space environment, aircraft flight dynamics, atmospheric propagation of electro-magnetic energy or radar ducting? Where can I get this expertise? Try local libraries, universities, local university short courses, AFIT in-residence or short courses. Ask other Staff Meteorologists!

b. Acquisition Support - Ask yourself (or AFMC/DOW), do I understand how the Air Force acquisition process works? Do I need to become Acquisition Program Development Process (APDP) qualified/certified or do I just need a basic understanding of the process? AFIT has in residence, correspondence, video teleconference, virtual classroom, and other computer based learning courses available.

c. Planning Process - Do you know how the DoD and the USAF determine mission requirements, plan for and meet these requirements? A quick review of the appropriate instructions and policy directives may answer this question.

d. Office Automation - Ask yourself, do I know how to use the high tech computer equipment that the Air Force has provided me or do I need training on how to manipulate the ON/OFF switch? Your local base education or computer office will have hardware, software(to include database management and programming) training available. Your job will be much easier if you first become familiar with your available hardware and software. (Label any data/discs sent to others)



STAFFMET ORIENTATION

Due to the diverse nature of staffmet support, AFMC/DOW does not attempt to establish rigid, command-wide orientation and training requirements. Rather, we leave this to be set locally, by each staffmet organization, based upon experience and lessons learned supporting your customers and their programs.

However, there are some basic guidelines we do want to share with you. These are based upon tried and proven inputs we received from all staffmet units. Your challenge at each unit is to adapt the requirements to your local mission and requirements. You may find you can delete some items, but you may have to add other facets to your training programs which do not appear here. Of course, not mentioned until now, but vital to the success of any staffmet is the fundamental training which each staffmet brings to the job. Specifically, that is their background and experience as a weather officer and the advanced education received in earning their graduate degree.

ORGANIZATION AND MISSION

A staffmet should be familiar with the following areas:

- AFMC Mission
- Weather Unit Mission and Organization
- Supported Unit/Units Missions and Organizations
- Planning Process (PPBS, MAP, TPIPT)
- Position / Job Description
- Test & Evaluation Process
- Research and Development Process
- Acquisition Process
- Unit Financial Planning and Sources
- Program/Project Continuity Binders; Here are some elements which might be appropriate for inclusion in these binders, please add to the list if needed.
 - Program Overview
 - Points of Contact
 - Environmental Sensitivities
 - Work Done/Data Provided
 - Projects Completed
 - Pertinent Correspondence
 - Pertinent Files and Locations
 - Organizational Structure
 - Support Agreements
 - Visit Reports
 - TDY Instructions

TRAINING SUGGESTIONS/SOURCES

A Staffmet should acquire/maintain the following types of training:

- Computer Training on hardware and software you will be using (Local Base Training)
- Basic Acquisition Training (ACQ 1XX, ACG 2XX, SYS2XX) Available from AFIT or The Defense Acquisition University via In-Residence, VTC, Virtual Classroom, or Correspondence
- Technical and scientific Short Courses
 - AFIT – Various courses on Lasers, Atmospheric Physics (1 wk)
 - University of Michigan – IR Technology and Adv. IR Technology (2 weeks)
 - University of Tennessee Space Institute – Testing and Evaluation, Atmospheric Effects (1-2 weeks)
 - Local Universities – Available Technology and Training (various)
 - SPIE Tutorials – 3-4 day training symposia available on detectors and sensors
- Conference and Symposium Attendance/Presentations
- Base / Unit Procedures
- Specific Unit Training Requirements
- Management Training
- Mobility Training
- Atmospheric Computer Models, if required

All of this training should be requested through your local base training facilitator/training office. Some of this in-residence or VTC training may involve training costs. You may have to provide a fund cite for either or both the training course costs and the TDY costs. This funding can be requested through your customers, from your TDY budget, from AFMC/DOW, or as an unfunded requirement through your financial folks.

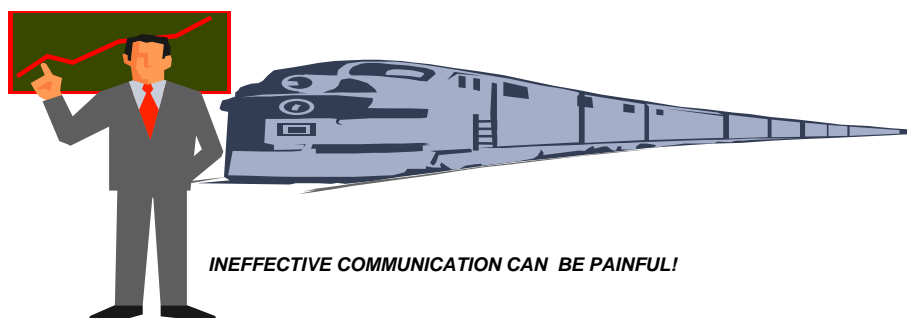
SUGGESTION

Maintain a notebook, for your personal use, chronologically listing a summary of all meetings, phone conversations, correspondence and discussions concerning each project, program or support question answered. This serves as a reminder and a valuable source document.

Section 4

COMMUNICATION

A Staff Meteorologist must be able to communicate effectively. Communication is a learned skill, lessons are often accompanied by an ocean of red ink. Success may be difficult to measure. Teachers have created huge volumes to help the neophyte become an expert communicator. It is not our intention to recreate these publications here. A study of Tongue and Quill (AFH 33-337) is a must to lay a proper communication foundation. However, we do want to highlight several important aspects of communication. **REMEMBER...**



EFFECTIVE BRIEFINGS

Below are some tips for effective briefings

- **Be Prepared**
- What is the purpose of the briefing
- Do Your Homework
- Practice
- Coordinate Your Ideas
- Who is your Audience (Know Support and Opposition)
- Brainstorm Questions



EFFECTIVE WRITING

Whether it is a Staff Study or a Point Paper, effective writing is essential. Not only will a well-written package be convincing, it is more likely to be read. If the decision maker has trouble following your line of reasoning, or finds a package incoherent, chances are it will end up at the bottom of the in-basket or the waste basket.



When is a decision not a decision? When it is not documented. One of your daily problems is balancing simplicity with documentation. Effective communication is key - do it quickly, but do it right. Knowing which documentation tool is appropriate in which circumstance is not an easy task. It will vary on the issue at hand, the decision level, and even the personalities involved. We have "borrowed" examples of the usual Air Force documentation tools from Tongue and Quill. They are:

- Short Note, Memo, or Point Paper - Used to informally pass information quickly to another person or office, can be used as a quick-reference outline for meetings.
- Background Paper - Presents the background underlying an issue or subject.
- Position Paper - Used to evaluate or advocate a proposal, raise a new idea for consideration, or "take a stand" on an issue.
- Talking Paper - Quick reference outline on key points, facts, positions, or questions to use during oral presentations.
- Staff Summary Sheet - Introduces, summarizes, coordinates, or obtains approval or signature on a staff package.

Another valuable documentation tool is E-Mail. E-Mail will provide an audit trail of all discussions and can be used to document informal talks and meetings. Use of and documentation using E-Mail is becoming more and more important in this electronic age.

A SUSPENSE SYSTEM



A suspense system is critical to the success of a staffmet. It doesn't matter what form it takes, from a deck of cards reviewed every day to a sophisticated computer program, whatever works for you. However, bust a suspense and you can destroy months of work.

Appendix 1

GENERAL INFORMATION

TECHNOLOGY MASTER PROCESS

The Technology Master Process functions as a subset of the overall Air Force Modernization Plan. AFPD 10-14, *The Air Force Modernization Planning*, guides the Air Force in the modification of doctrine, tactics, training, and the investment of assets to include the acquisition and development of new systems. The Air Force uses this process to identify and correct deficiencies in the Air Force mission and functional plans required to support the national military strategy. The three step Modernization Planning Process includes the Mission Area Assessment (MAA), Mission Needs Analysis (MNA) and Mission Area Plan (MAP). The MAA refines the strategies-to-task baseline provided to each MAJCOM by HQ USAF/XOX, the MNA refines the tasks to needs and identifies any deficiencies in current and future capabilities in the Mission Needs Statement (MNS). The MAJCOMS attempt to correct any deficiencies by adjusting doctrine, tactics, or training (non-materiel solutions) before addressing a new materiel solution (new weapons system or requirement). Each Air Force functional area (communications, intelligence, civil engineering, security police or weather) must also develop a plan to meet its own functional requirements as well as to support MAJCOM MAPs. This plan, the Mission Support Plan (MSP), is similar to the MAP with the exception that it may cut across multiple MAJCOMs, Services or Joint, Defense and National Agencies. This plan will not include those deficiencies identified in MAJCOM MAPs.

Weapon System Development Processes. The Air Force modernization planning process is the framework for determining Air Force needs for new or improved capabilities to perform its assigned missions. It is structured to contribute to the larger, national level process which establishes the national security objectives and defense strategy. The process has essentially three components: the requirements portion to identify deficiencies; the Technology Master Process to inject new technologies to satisfy the deficiencies; and finally the acquisition portion where the Air Force "buys" new capabilities. All three components work in concert in an iterative process.

Requirements Process. Typically the modernization planning process is entered through the requirements component. Identifying deficiencies requires a clear understanding of current and future mission requirements. As a result of Joint Staff and National Command Authority guidance, DoD produces regional and global plans, and strategies tasking the services with specific missions and objectives. Using these top level mission requirements, the Air Force uses MAAs and MNAs to identify the specific Air Force mission needs and develop operational requirements. The Air Staff, MAJCOMS and Field Operating Agencies (FOAs) conduct MAAs using a "strategy-to-task" process linking the need for certain military capabilities to the military strategy. The MNA begins when tasks are identified during the MAA. The MNA objective is to evaluate the Air Force's ability to accomplish identified tasks and missions using current and programmed future systems. AFPD 10-6, *Mission Needs and Operational Requirements* and AFI

10-60, *Mission Needs and Operational Requirements; Guidance and Procedures* provide greater detail on the requirements process.

Mission Area Plans (MAPs). Mission Area Plans are developed to document these findings. MAPs cover periods of 25 years and use the results of the MAA and the MNA to develop the most cost effective means of correcting task deficiencies from among non-material solutions, changes in force structure, systems modifications or upgrades, science and technology applications, and new acquisitions. AFRD 10-14, *Modernization Planning* and AFI 10-1401, *Modernization Planning Documentation* establishes the policy, functional responsibilities, and procedures for the MAP process.

Mission Support Plans (MSPs). The weather community, as a functional area, develops a Mission Support Plan following the same principles used in MAP development. The Weather MSP must cover the weather deficiencies as identified in all the MAPs. In addition, it must also address the derived requirements (those not specifically spelled out in the MAPs) and modernization requirements within the weather community to support the needs of the weather community's warfighting customers. The Weather MSP team is composed of two groups: the 0-6 Steering Group and the Action Officer Group. Membership for both is drawn from Air Force MAJCOMs, including Air Reserve Component (ARC), Army Major Commands (MACOMs), Air Force Weather Agency, AFRL and AFMC product centers, the Air Staff, and other functional experts. The 0-6 Steering Group provides broad, generalized guidance on future directions with the Action Officer Group developing the plan.

The Technology Master Process. As an integral part of the Air Force planning process, the Technology Master Process provides a comprehensive conduit for technology development, transition, insertion, and transfer by ensuring all warfighter needs are identified and prioritized. It also ensures dollar constrained technology projects are formulated in an highly integrated manner with the full participation of all stakeholders. It ensures technologies flowing into AFMC centers for application/insertion are validated and ready to enter the full acquisition cycle.

Technical Planning Integrated Product Teams. To better focus technology and systems development efforts, Technical Planning Integrated Product Teams (TPIPTs) have been established to integrate information from all the stakeholders, provide a forum to understand AF mission area requirements, and develop solutions and identify technology needs. The TPIPTs are networks of experts from the development community, the product centers, AFRL, and operational commands that are organized by mission or function to plan and facilitate the development of technical solutions to users' near, mid, and far term operational needs.

Development Plan. - One of the TPIPT's functions is to continuously identify technology needs in the ongoing planning process. The Development Plan is a key tool in this process. The Development Plan is prepared and maintained by the TPIPT. It reflects 25 years of planned development to correspond to the timelines in Mission Area and Mission Support Plans. It identifies and characterizes the high payoff solutions that satisfy one or more deficiencies identified in the MAP or MSP.

Weather Development Plan. - ESC provides the chair of the Weather TPIPT. Membership is drawn from Air Force MAJCOMS, Army MACOMS, AFWA, AFRL and AFMC product centers, the Air Staff, and other functional experts. This group meets on an as-needed basis to discuss the Weather Development Plan, to evaluate the status of in-progress programs, and to consider changes, as necessary. It works closely with the Weather MSP Action Officer Group.

Acquisition Process. - The Acquisition Process provides a logical means of progressively translating broadly stated mission needs into well-defined system specific requirements. This is accomplished using an incremental commitment of resources, converting dollars into hardware or capability. The rules governing the process are found in DoD Directive 5000.1, *Defense Acquisition*, and DoD Regulation 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs*.

ROLE OF THE STAFFMET

Air Force Weather (AFW) personnel are key players in the acquisition process. Acquisition Meteorologists at AFMC product centers, AFRL research sites, and test centers provide all necessary technical advice, information, and aid, from a weather viewpoint, to AFMC acquisition programs through all phases of the acquisition cycle. Staff meteorologists identify and quantify weather sensitivities of Air Force systems during all phases of the acquisition cycle to the respective Program/Project office and communicate these to the Lead Command Staff Weather Officer (SWO).

Lead command SWOs supporting the operating commands have the primary responsibility to identify environmental support requirements for the USAF acquisition and technology-based programs generated by their MAJCOMS. They ensure environmental support requirements and resources are identified in Mission Needs Statements (MNSs), Operational Requirements Documents (ORDs), and CONOPS prepared by their command. Lead command SWOs identify to the appropriate staffmet and program/project office, any system weather sensitivities or potential operational weather support shortfalls they discover within the planned system. They also provide input to the Weather MSP process.

Staff meteorologists also identify weather support requirements for Air Force acquisition and technology-based programs. Staffmets ensure weather support requirements and resources are identified in TEMPS, SAMPS, and other technology and acquisition documentation. They ensure new resource requirements are considered in subsequent system acquisition documents for funding outside of AFW as well as those to be funded by AFW. Requirements funded outside of AFW or those unique to the operating command are identified to the System Program/Project Office. Weather support requirements for Air Force wide applications are identified to HQ AFWA and HQ USAF/XOW. Staffmets also provide requirements input through the Weather MSP process.

Appendix 2

PROGRAM SUPPORT

General

A. Acquisition programs follow a four phased program life cycle. These phases along with the decision points to proceed to the next phase, milestones, and documentation are discussed and described in the Defense Acquisition Deskbook, and will not be discussed here. A WWW site with valuable acquisition information and links to other acquisition sites is located <http://www.dsmc.dsm.mil>, the Defense Systems Management College home page.

B. Staffmet responsibilities:

- Track and comment on all the program documentation during each program phase. The best time to make inputs on the program documentation is when the documents are open for comments within the Program Office.
- Assist the program/project office to quantify the environment in program documentation.
- Work with the program/project office to establish the environmental requirements the contractor must design to while the weapon system evolves or the project develops. Once the contract has been signed by the Air Force, changes in environmental requirements become more difficult.
- The staffmet should maintain multiple contacts within the program to ensure access to these documents.
- As a program matures, changes in environmental requirements become more difficult because design changes become more expensive. Therefore staffmet involvement with a program needs to begin early.

PROGRAM SUPPORT CHECKLIST FOR STAFFMETS

The following checklist can be used as a guide by staffmets who have recently acquired a new or already existing program at a lab, product center or test center. The checklist serves to introduce a staffmet to a program through readings and discussions with Program Office (PO) and the previous staffmet. This checklist is slanted toward program support, however, it can be modified and used for laboratory projects. A checklist should be worked for all applicable programs and filed in the applicable program file. Additional comments may be added as necessary.

I. Introductory Program Information:

- A. Program Name:_____
- B. Program Office Symbol:_____
- C. Using Command (MAJCOM):_____
- D. Supporting MAJCOM Weather Unit (e.g., AFSOC/DOW):_____.
- E. MAJCOM Staff Weather Officer (SWO): _____.

II. Actions To Be Taken Using Continuity Information: (initial and date)

- A. Interview with previous program STAFFMET:_____.
- B. Review of Applicable Program Files: _____.
- C. Interview with Program / Project Point of Contact(s): _____.

III. Review of Program Documentation/Environmental Issues:

- A. References: Review Appendix 5.
- B. The following is a list of some of the important program documentation generated during each of the acquisition life cycle phases. Review these documents. You should work with the program / project office to determine what other documentation or data requirements are important.
 - 1. Review Mission Need Statement (MNS): _____.
An MNS will normally be very short (no more than five pages), so your comments must be abbreviated. Section 5, Constraints is where you can address the operating environment .
 - 2. Review the 88th WS Weather Sensitivities Handbook: _____.
Updates to the handbook may be required if new sensitivities are identified.
 - 3. Review Test and Evaluation Master Plan (TEMP): _____.
TEMPs are usually initiated prior to Milestone 1, but the time the initial document is written will vary by program. TEMPs are normally updated at milestones or when the program changes significantly. The first TEMP is usually vague. Be brief with TEMP comments; there is usually a page limit. Make sure you coordinate your comments with other test organizations (such as range and AFOTEC staffmets) as well as the using

MAJCOM SWO. TEMP sections where environmental comments may be necessary are identified below:

4. Review Analysis of Alternatives (AOA): _____.
The scope of a AOA depends upon the acquisition stage and the system's dollar value. The AOA is updated prior to each milestone. Staffmet comments will generally be limited to paragraph 1c, Environment, where the operating environment is defined. In addition, the staffmet should examine the quality of the environmental simulation and the environmental limitation evaluation in the AOA.
5. Operational Requirements Document (ORD): _____. (The single most important program document for STAFFMETs to review.)
 - a. When a concept is approved to proceed into Phase I, Program Definition & Risk Analysis, the ORD will be generated by the using command and normally sent to the SPO for comments. The ORD defines the capabilities required to meet the MNS.
 - b. There are several ORD sections where environmental comments may be necessary. Coordinate your comments with the MAJCOM SWO (particularly any unique weather support). The format of the ORD is contained in Appendix II, DoD 5000.2-R. The Environmental Support Section (Sec 5j) is used to identify standard or unique weather, oceanographic, and astrogeophysical support the system may require. As the system matures, it is essential environmental support is identified in the ORD. Note: Coordinate operational requirements with the MAJCOM/SWO.
6. Additional Program Documentation. These are documents which may or may not require STAFFMET input:
 - a. Review Request For Proposal (RFP): _____. The RFP communicates government requirements to industry and solicits proposals to satisfy those requirements.
 - b. Review Statement of Work (SOW): _____. Defines an effort or non-specification task or requirement to be accomplished by a contractor. SOWs are generally a part of an RFP or contract.
7. Ensure there is open communication between Product Center, Test Ranges, AFOTEC/WE, and the MAJCOM SWO: _____.

IV. Summary.

This is not meant to be a complete listing of all the documents that a STAFFMET should review or be familiar with for each of the supported programs, it is only meant to highlight some of the more important documentation. Each of these documents is reviewed and updated throughout the various phases of the acquisition / development cycle. The STAFFMET must be involved in

this review process to ensure that environmental concerns are evaluated throughout the system process.

When the system reaches the deployment phase of the acquisition process, the role of the STAFFMET is nearly completed. The MAJCOM SWO/DOW is primarily responsible for operational support requirements. STAFFMETs should still provide assistance to SWOs and the program office, as needed. Programs have been known to have "hidden" problems that may occur well into this phase. Many programs undergo modifications and product improvements after being operational for a number of years. Also, modifications made to one aircraft and applied to another aircraft may be affected differently by the environment. Communication between the SWO and the STAFFMET is critical. Feedback from the SWO and operational units is encouraged.

Appendix 3

DEFENSE ACQUISITION DESKBOOK

What is the Defense Acquisition Deskbook?

The Defense Acquisition Deskbook is a software package designed to assist Air Force personnel through the often complex process of acquiring new weapons systems. The Deskbook has replaced and contains the data and information from the Air Force Acquisition Model (AFAM). The Deskbook is an automated reference tool that provides acquisition information for all DoD components across all functional disciplines. This reference tool is easy to use and provides access to the most current mandatory directives, discretionary guidance, practical advice, and software tools. Deskbook originated from an Acquisition Reform Initiative to reduce mandatory directives while assisting program managers in making informed decisions. This system is designed to run under Windows 3.1X, Windows 95, Windows NT or greater, and provides the same "Windows" look and feel as other Windows applications.

The Deskbook is designed to assist inexperienced acquisition personnel in performing acquisition tasks for a Major category weapon system program. However, most of the tasks also apply to Non-Major acquisitions, or they can be tailored to apply. The Defense Acquisition Deskbook is currently designed to run on a stand-alone IBM compatible personal computer (PC) or on a Local Area Network (LAN). Deskbook is releasable to the public; it is non-proprietary, unclassified, and there are no duplication restrictions for this software. The CD-ROM which contains the Deskbook also contains the latest Action Officer's Guide (AOG).

How Can I Get a Copy of the Deskbook?

There are several ways to get a copy of Deskbook.

World Wide Web: <http://www.deskbook.osd.mil>

Write to:

Defense Acquisition Deskbook JPO
2275 D Street, Bldg 16
WPAFB, OH 45433-7233

Call: DSN 785-0423 or COM'L (937) 255-0423

FAX: DSN 785-4102 or COM'L (937) 255-4102
Toll Free (800) 711-0230

E-Mail: deskbook@deskbook.osd.mil

Appendix 4

METHODOLOGY FOR CUSTOMER SUPPORT

1. Determine customer needs.
 - a. Visit the program manager and other key program personnel.
 - b. Become thoroughly familiar with the pertinent aspects of the program (read program documentation such as the ORD, TEMP, SOW, etc.)
 - c. Determine the areas of meteorological impact.
 - d. Feedback to the program the specific support you recommend and gain their concurrence.
2. Determine the proper sources of information and resources.
 - a. Research local files.
 - b. Discuss with the using MAJCOM SWO, other Staffmets or AFMC/DOW.
 - c. Task, via AFI 15-118, AFWA, AFCCC, 55th SWXS, etc., as appropriate.
3. Maintain close contact with the program manager and key personnel involved to keep abreast of changes.
 - a. Document phone calls, correspondence and discussions in a case/continuity file.
 - b. Follow-up, anticipate, re-examine.
 - c. Inform MAJCOM SWO/DOW of your actions and coordinate any support questions.
4. Present finalized support to the customer.
 - a. Ensure customer thoroughly understands meteorological input(s).
 - b. Be sure the customer applies the meteorological input appropriately to the problem.
 - c. Remain alert for follow-up support.
 - d. Coordinate with MAJCOM SWO/DOW on transitioning new systems to operational support.
5. Do a post-analysis of your work. Submit a value analysis assessment, when feasible. Value analysis shows our customers, and ourselves where we "make our money." Documented savings can be in the millions of dollars.

Appendix 5

ACQUISITION DOCUMENTATION TERMS EXPLAINED

This glossary will help STAFFMETs understand the terms used in the Air Force acquisition process. Since it includes only a few of the many pertinent terms, STAFFMETs should also refer to Joint Publication 1-02, "DoD Dictionary of Military and Associated Terms" and AFM 11-1, Vol. 1, the "USAF Glossary of Standardized Terms."

Some valuable Websites for additional definitions and acronyms are listed below:

Acronym Listing -- <http://www.dacs.dtic.mil/tipics/acronym/acronyms.shtml>

Acquisition Glossary -- http://www.dsmc.dsm.mil/pubs/glossary/append_b.htm

JP 1-02 -- <http://www.dtic.mil/doctrine/jel/doddict>

Acquisition Category (ACAT). Classifications of Major Defense Acquisition Programs, ACAT I, ACAT IA, ACAT II, and ACAT III. These categories are differentiated by the expenditures for RDT & E and/or procurement costs.

Acquisition Life Cycle. The four phases numbered 0-III which a system goes through during research, development, test, and evaluation (RDT&E) and operations and support. They are Concept Exploration (Phase 0), Program Definition and Risk Reduction (Phase I), Engineering and Manufacturing Development (Phase II), and Production, Fielding/Deployment and Operational Support (Phase III). Each phase is preceded by a milestone or decision point.

Acquisition Program. A directed effort funded either through the procurement appropriations, through the Security Assistance Program; or through the Research, Development, Test and Evaluation (RDT&E) appropriation, with the goal of providing a new or improved capability for a validated need. An acquisition program may include either the development or procurement of systems, subsystems, equipment, munitions, or modifications to them, as well as supporting equipment, systems, projects, and studies. Excluded from this definition are the general purpose, commercially available automatic data processing assets.

Advanced Development. A funding category including all projects which have moved into the development of hardware for experimental or operational test. 6.3A is nonsystem and 6.3B is system development.

Acquisition Decision Memorandum (ADM). The ADM identifies a minimum set of alternatives to be examined, the lead organization for the study effort, the dollar amount, source of funding, and the exit criteria for a decision. Documents decisions made as a result of the milestone decision review or the in-process review.

Advanced Technology Demonstration (ATD). A focused technology program developed and managed in the labs and demonstrated to the users to illustrate its potential operational capabilities. If the demonstration is successful and accepted by the using command, the program can be transferred directly to the user with minimal involvement in the acquisition process. In today's more limited funding environment, AF and DoD are looking for ways to reduce development costs. These (ATDs) are viewed as a way of incorporating new technologies while avoiding the normal costs associated with acquiring a new system.

Air Force Designated Acquisition Program (AFDAP). A program that is less than a major program. Milestone I, II, and III decisions are made by the Secretary of the Air Force (SAF) with the advice of the Air Force Systems Acquisition Review Council (AFSARC). AFDAPs will usually have estimated costs (Fiscal Year 80 dollars) for Research, Development, Test and Evaluation between \$100M and \$200M or \$500M and \$1B for procurement (production).

Air Force Operational Test and Evaluation Center (AFOTEC). A separate field operating agency at Kirtland AFB, that evaluates the operational effectiveness and suitability of weapons systems. AFOTEC is an independent source of information separate from the developing or using command and reports directly to the Air Staff.

Air Force Systems Acquisition Review Council (AFSARC). Secretary of the Air Force Order 20.6, 26 June 1976, established the AFSARC as the senior Air Force advisory council for system acquisition. It is the Air Force equivalent of the DAB, the Air Force Acquisition Executive (AFAE) is the chairman. Membership consists of all of the Air Force Deputy Chiefs of Staff.

Air Force Planning Guide. A document published by the HQ USAF Capability Assessment Division, Directorate of Plans, that describes Air Force-wide Mission Area Analysis.

Analysis of Alternatives (AOA). An analysis of the estimated costs and operational effectiveness of alternative materiel systems to meet a mission need and the associated program for acquiring each alternative. (formerly COEA) (DoD 5000.2-R)

Budget Estimate Submission (BES). Budget estimates submitted in mid-September of each year by the military departments to the Secretary of Defense. The BES shows what the approved programs reflected in the PDMs will cost.

Black Program. A black program is one with a high security classification and is normally processed outside the DSARC processes.

Brassboard Configuration. An experimental device used to determine feasibility and to develop technical and operational data. It will normally be a model sufficiently hardened for use outside of laboratory environments to demonstrate the technical and operational principles of immediate interest. It may resemble the end item, but isn't intended for use as the end item.

Breadboard Configuration. An experimental device for determining feasibility and for developing technical data. It will normally be configured for laboratory use to demonstrate the technical principles of immediate interest. It may not resemble the end item and isn't intended for use as the projected end item.

Commercial Off The Shelf (COTS). Commercial systems or components the DoD purchases with little or no modification.

Concept Exploration and Definition Phase (Phase 0). The first of four acquisition phases defined in DoD Directive 5000.1.

Configuration Management Plan (CMP). A plan for applying technical and administrative direction to do the following: identify and document the functional and physical characteristics of a system; control any changes to such characteristics; and record and report the change, process, and implementation status.

Cost and Operational Effectiveness Analysis (COEA). See Analysis of Alternatives

Critical Design Review (CDR). During Phase II, this review determines whether the design satisfies the performance and engineering specialty requirements and confirms the design compatibility among all parts of the end system.

Defense Acquisition Board (DAB). The DAB, as the DoD corporate body for system acquisition, provides advice and assistance to the Secretary of Defense on the acquisition process. The chairman is the Defense Acquisition Executive. The Vice Chairman of the Joint Chief of Staff is the vice chairman. The DAB reviews major programs at milestones and recommends whether they should enter the next acquisition phase.

Defense Acquisition Deskbook (DAD). An automated reference tool sponsored by the OUSD(A&T) to assist program offices in implementing DoDD 5000.1 and DoD 5000.2-R. The www location is provided in Appendix 3.

Defense Acquisition Executive. The principal advisor and assistant to the Secretary of Defense and the focal point for DoD systems acquisition processes.

Demonstration and Validation Phase (Phase I). The second of four acquisition phases defined in DoD Directive 5000.1.

Development, Testing and Evaluation (DT&E). Testing and evaluation used to measure progress, to verify accomplishment of development objectives, and to determine if theories, techniques, and materials are practical; and if systems or items under development are technically sound, reliable, safe and satisfy specifications. DT&E starts at the concept exploration phase and continues through the engineering and manufacturing development phase.

Engineering Change Proposal (ECP). An ECP is a document that describes a proposed contract change in great detail.

Engineering and Manufacturing Development Phase (Phase II). The third of four acquisition phases defined in DoD Directive 5000.1.

Environmental Assessment (EA)/Environmental Impact Statement (EIS). The EA is an Environmental Protection Agency document containing an estimate of whether or not a proposed system will adversely affect the environment or whether it will be environmentally controversial, in which case an EIS is prepared. This document is not prepared by the Staffmet but generally by the Civil Engineer assigned to the program.

Fiscal Year (FY). The twelve month period, 1 October to 30 September, the US Government uses for budgetary purposes.

Follow-On Operational Test and Evaluation (FOT&E). The test and evaluation that may be necessary after Milestone II to refine the estimates made during Operational Test and Evaluation (OT&E) to evaluate changes, and to reevaluate the system to ensure that it continues to meet operational needs and retains its effectiveness in a new environment or against a new threat.

Full Operational Capability (FOC). The full attainment of the capability to employ effectively a weapon, item of equipment or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force.

Future Years Defense Program (FYDP). The official document that summarizes programs approved by the Secretary of Defense for the entire DoD. The FYDP projects detailed resource requirements for 6 years and force structure for 8 years. The Office of the Secretary of Defense updates the FYDP three times each year to reflect the services' POM, the Budget Estimate Submission (BES), and the President's Budget (PB).

Government Furnished Equipment (GFE). GFE are items in the possession of or acquired by the government and then delivered/made available to the contractor.

Human Factors Engineering. Human factors engineering is a field which evaluates how well the human being is factored into the design of systems.

Implementing Command. The command or agency designated by Headquarters USAF to manage an acquisition program. Generally AFMC is the Implementing Command.

Initial Operational Capability (IOC). The first attainment of the capability to effectively employ a weapon, item of equipment, or system of specific characteristics, and which is manned or operated by an adequately trained, equipped, and supported military unit or force.

Initial Operational Test and Evaluation (IOT&E). Operational test and evaluation conducted on production, or production representative articles, to determine whether systems are operationally effective and suitable for intended use by representative users to support the decision to proceed beyond low rate initial production.

Joint Requirements Oversight Council (JROC). Responsible to the Chairman, Joint Chiefs of Staff for assessing military requirements in support of the defense acquisition process. Membership includes, Vice Chairman of the JCS, Vice Chiefs of the Army, Air Force, Vice Chief of Naval Operations and the Assistant Commandant of the Marine Corps.

Life Cycle of a Weapon System. The life cycle includes all phases of the system including development, production, deployment, and retirement from the inventory.

Major System Acquisition (MSA). A system acquisition program designated by the Secretary of Defense to be of such importance and priority as to require special management attention. These programs commonly exceed \$200M Research, Development, Test and Evaluation (RDT&E), or \$1B in procurement costs (Fiscal Year 80 dollars). The Defense Acquisition Executive may designate systems having lower estimated costs as major systems. (DODD 5000.1)

Matrix Organization. An organizational structure that implements both functional and project structures simultaneously; project managers and functional managers have equal authority.

Milestone 0, I, II, III, IV. Decision points in the DoD acquisition process where program progress and goal are evaluated to determine whether to continue with the acquisition program. Each milestone precedes the phase of the program life cycle, with milestone IV precedes major modification to a weapon system.

Mission Area Assessments (MAA). Assessments generated by the Air Staff, MAJCOMS, and FOAs using a “strategy to task” process linking the need for certain military capabilities to the military strategy.

Mission Area Plan (MAP). Documents the findings of the Mission Area Assessment (MAA) and the Mission Needs Analysis (MNA). The MAP covers a period of 25 years and is used to develop the most cost effective means of correcting deficiencies from among non-materiel solutions, changes in force structure, systems modifications or upgrades, science and technology applications and new acquisitions.

Mission Needs Analysis (MNA). An analysis which evaluates the Air Force’s ability to accomplish the tasks and missions identified in the MAA using current and programmed future systems. This analysis further refines the MAA “strategy to task” to reflect the “need”.

Mission Needs Statement (MNS). A formal numbered document used to identify a material operational deficiency in broad general terms and state the need for a new or improved capability for USAF forces, usually generated by the operating commands.

Mission Support Plans (MSP). The Air Force Weather Agency, in coordination with the entire weather community as a functional area develops a MSP following the same principles used for the MAP. The weather MSP must cover weather deficiencies identified in all the MAPs, in addition it must address derived requirements as well as modernization requirements within the weather community.

Off the Shelf. This is procurement of existing systems or equipment without an RDT&E program. They may be commercial or DoD systems already available for purchase.

Operating Command. The command primarily "operating" a system, subsystem, or item of equipment. Generally applies to those operational commands or organizations designated by HQ USAF to conduct or participate in operations or operational testing. AMC, ACC, AFSOC, AIA, and AETC are examples of operating commands. The operating command is responsible for generating both the MNS and the ORD.

Operational Effectiveness. The overall degree of mission accomplishment of a system used by representative personnel in the context of the organization, doctrine, tactics, threat, (including countermeasures and nuclear threats) and environment in the planned operational employment of the system. (DODD 5000.1)

Operational Requirements Document (ORD). The ORD is the requirements and planning document prepared to address operational and support needs. The ORD is prepared by the operating command. The ORD is a dynamic document that can undergo annual revision as the system evolves.

Operational Suitability. The degree to which a system can be satisfactorily placed in field use, with consideration being given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistic supportability, and training requirements. (DODD 5000.1)

Operational Test and Evaluation (OT&E). Operational test and evaluation is divided into initial operational test and evaluation (IOT&E) and follow on operational test and evaluation (FOT&E); OT&E is generally associated with the first major production (milestone II) decision conducted in as realistic an operational environment as possible to estimate the prospective military usefulness, operational effectiveness, and operational suitability of the system. In addition, operational test and evaluation provides information on organization, personnel requirements, doctrine, and tactics. Also, it may provide data to support or verify material in operating instructions, publications, and handbooks.

Pilot Production. It's the initial production of a system in limited quantity. These systems are used in operational test and evaluation for verifying production engineering and design maturity and to establish a production base prior to a decision to proceed with production.

Planning, Programming and Budgeting System (PPBS). The PPBS is the process by which DoD identifies what it needs to be funded and for how much. DoD manpower, operations, logistics activities and acquisition activities are funded through this system. It is a three phase system process used by the SECDEF to manage DoD resource allocation. The end product of the PPBS is the DoD portion of the Presidents Budget.

Pre-planned Product Improvement (P3I). An evolutionary approach designed to minimize technological risk and shorten the time required to field new weapons systems. The approach envisions deliberate planning for use of less advanced technologies initially in a system while consciously planning to incorporate more advanced technologies after the system is placed in operation.

Production and Deployment/Operations and Support (Phase III). The last of four acquisition phases defined in DoD Directive 5000.1.

Program Element Monitor (PEM). The PEM is an individual on the Air Staff who acts as the link between HQ and Congress, the PEM prepares the PMD and functions as the Air Staff advocate for a specific program.

Program Executive Officer (PEO). The PEO is a General Officer or SES Civilian responsible to the DAB for ensuring that the program direction for a congressionally specified acquisition program is followed.

Program Management Directive (PMD). The PMD is the guidance document from the Air Staff to the effected command which provides direction on an acquisition program. The PMD specifies what is to be done and who is to do it but not how it is to be done.

Program Management Plan (PMP). A plan developed by the program manager to implement the requirements stated in the Program Management Directive and the attached AFMC Form 56. The PMP outlines the system acquisition from concept development to operational deployment. There are several sections which may contain environmental comments. The STAFFMET will consolidate all the environmental support required throughout the system life cycle and write them in Section 14 of the PMP.

Program Objective Memorandum (POM). A biannual memorandum in prescribed format submitted to SECDEF by the Secretary of a Military Department or the Director of a Defense Agency which recommends the total resource requirements and programs within the parameters of SECDEF's fiscal guidance. The POM includes forces, people and cost implications for the two budget years plus four additional years. A major document in the BPPBS.

Prototype Production. Initial systems in final form employing standard parts, and representative of systems subsequently produced in a production line.

Realistic Test Environment. The conditions under which the system is expected to be operated and maintained, including the natural weather and climatic conditions, terrain effects, battlefield disturbances, and enemy threat conditions.

Request for Proposal (RFP). The RFP is the document written by the program office soliciting work from contractors. It includes a complete work breakdown structure listing and many other attachments contractors must comply with when submitting a bid.

Source Selection. The process in which the requirements, facts, recommendations and government policy relevant to an award decision in a competitive procurement of a system are examined and the decision made.

Staff Weather Officer (SWO). An AF meteorologist who provides or arranges for staff and operational weather service for the weapon systems needed by the operational command they support. Typically they work in the MAJCOM DOW offices.

Statement of Work (SOW). A SOW is that portion of a contract which describes the actual work to be done by means of specifications or other minimum requirements, quantities, performance dates, and a statement of the requisite quality.

System Acquisition Process. A sequence of specified decision events and phases directed to achieve established program objectives and to acquire systems. It extends from identifying a requirement through successfully deploying the system or ending the program.

System Design Review (SDR). The SDR evaluates the optimization, correlation, completeness, and risks associated with the allocated technical requirements.

System Program Office (SPO). The SPO is the office of the program manager and the single point of contact with industry, government agencies, and other activities participating in the system acquisition process.

System Requirements Review (SRR). This review evaluates the adequacy of the contractor's efforts in defining the requirements for the system.

System Threat Analysis Report (STAR). An assessment of foreign capabilities which could affect the viability, effectiveness, or design of the system. A STAR is the single authoritative reference for threat information pertaining to a DAB-level program. An updated STAR is required at each program milestone.

Technical Planning Integrated Product Team (TPIPT). Networks of experts from the development community, the product centers, AFRL, and the operational commands that are organized by mission or function to plan and facilitate the development of technical solutions to users' near, mid and far term operational needs. These experts provide a forum to understand Air Force mission area requirements, and develop solutions and identify technology needs.

Technology Master Process (TMP). A mechanism that provides a comprehensive conduit for technology development, transition, insertion, and transfer by ensuring that all warfighter needs are identified and prioritized. This process ensures that technologies flowing into AFMC centers for application/insertion are validated and ready to enter the acquisition cycle.

Test and Evaluation Master Plan (TEMP). This is an overall test and evaluation plan designed to identify and integrate the effort and schedules of all test and evaluation to be accomplished with an acquisition program. The TEMP defines adverse weather for the developing system and describes how to integrate adverse weather testing into the overall test and evaluation plan.

Threat Assessment Report (TAR). Identical to a System Threat Assessment Report (STAR) in content and format, a TAR is prepared for Air Force Designated Acquisition Programs (AFDAP) that require review by the AF System Acquisition Review Council (AFSARC).

Total Obligation Authority (TOA). The total financial requirement of the Future-Year Defense Program (or any component thereof) needed to support the approved program of a given fiscal year.

Weapon System. A delivery vehicle and weapons combination including all related equipment, materials, services, and personnel required so the system becomes self-sufficient in its intended operational environment.

Appendix 6

PERTINENT INSTRUCTIONS AND PUBLICATIONS

Here is a partial list of instructions and publications of interest and assistance to the staff meteorologist:

"Air Force Magazine". An annual almanac issue with an Air Force wide statistics as well as a MAJCOM, FOA and installation summary.

AFMC "Leading Edge". An annual issue of the AFMC Magazine with a command overview and a unit summary of each AFMC organization.

Air Force Weather "Observer". Annual almanac issue of the Observer contains listing of Air Force Weather units and personnel.

AFMAN 37-126 and AFMC Supplements 1 and 2, *Preparing Official Communication*. Provides general guidelines in preparing official written communications.

AFH 33-337, *The Tongue and Quill*. Everything you ever wanted to know about Air Force communications, both oral and written to include formats of various communications tools.

Action Officer's Guide. An on-line software tool that formats and provides guidance on the preparation of various written Air Force communications described in the Tongue and Quill. Available through your computer network personnel, on the AFMC homepage or @ www.aog.wpafb.af.mil.

AFP 13-5, *Air Force Effective Writing Course*. Discusses common problems in Air Force writing and how to correct these difficulties.

Defense Acquisition Deskbook. A software package that is a combination automated acquisition reference and guide through the complex acquisition process. (See Appendix 3)

DoD Directive 5000.1, *Defense Acquisition*. Provides basic policies governing defense acquisition (Overview).

Acquisition Policy 97A-004, *Modeling and Simulation is Support of the Air Force Acquisition Process*, SAF/AQ, 28 Nov 1997.

DOD Instruction 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*. Provides detailed procedures necessary to implement the policies of DOD Directive 5000.1.

DoD Directive 5000.59-P, *DoD Modeling and Simulation Master Plan*, Oct 1995.

DoDI 5500.7, *Standards of Conduct*. (dated 1993). Applies to all DOD personnel and activities, both civilian and military. Sets forth ethical standards of conduct for all DOD personnel concerning affiliations and financial matters. Sets standards for dealing with former and present military and civilian personnel.

Mil- Std 810, *Military Standard, Environmental Test Methods and Engineering Guidelines*. Establishes uniform environmental test methods for determining the resistance of equipment to the effects of natural and induced environments associated with military operations. Superseded, but still a valuable data source.

Mil- Std 210, *Military Standard, Climatic Information to Determine Requirements and Test for Military Systems and Equipment*. Provides climatic information and extremes enabling systems engineers to determine design and test requirements for military systems and equipment. Superseded, but still a valuable data source.

Mil-HDBK-310, *Global Climatic Data for Developing Military Products*. Provides worldwide climatic data for guidance, not requirements, in the design and testing of weapons systems.

Mil- Std 1165, *Military Standard, Glossary of Environmental Engineering Terms*.

Mil- Std 1809, *Military Standard, Space Environment for USAF Space Vehicles*. Addresses the natural unperturbed space environment, the standard is intended to ensure that space environment interactions are considered and incorporated into the design of space systems, and provide a basis for evaluation of the hardness of space systems.

HQ USAF/XOC, **AF Modeling and Simulation Master Plan**, Jan 1996

AFPD 10-6, *Mission Needs and Operational Requirements*. Defines AF policies for all mission needs and operational requirements which may result in funding systems with Air Force appropriations.

AFPD 10-9, *Lead Operating Command Weapons System*.

AFPD 10-14, *Modernization Planning*.

AFI 10-601, *Mission Needs and Operational Requirements, Guidance and Procedures*. This instruction provides guidance and procedures for developing and processing Air Force mission needs and operational requirements which may result in funding with Air Force appropriations. (Replaces AFR 57-1)

AFI 10-901, *Lead Operating Command--Command, Control, Communications and Computers (C4I) Systems Management*.

AFI 10-1401, *Modernization Planning Documentation*.

AFPD 15-1, *Atmospheric and Space Environmental Support* (Replaces AFR 105-1).

AFMCI 15-1, *Weather Support to RDT & E and Acquisition Programs*. Implements AFPD 15-1, establishes procedures for managing AFMC weather support to Air Force acquisition programs and technology-based efforts.

AFI 15-109, *Providing Meteorological Support to Non-Military Agencies and Foreign Governments or Individuals*. Describes conditions under which the USAF provides meteorological support to nonmilitary agencies and individuals (Replaces AFR 105-9).

AFI 15-118, *Requesting Specialized Weather Support*. Discusses how to request support from the AFWA Centralized Support System and defines priorities (Replaces AFP 105-18/AWSR 105-18).

AFCAT 15-152 Vol. II, *Weather Station Index*. A continuously updated file, with WMO #s and identification letters as well as location for all reporting weather stations.

Draft AFPD 16-10, *Modeling and Simulation (M&S)*, 25 Jun 1997

AFI 16-301, *USAF Priority System for Resource Management*. Describes USAF priority system which includes US Army Force Activity Designators (FADs) and the USAF precedence ratings (Replaces AFR 27-1).

AFPD 61-1, *Management of Science and Technology*. Describes AF policies for Research and Development, describes program structure and program elements. (Replaces AFR 80-1 Air Force Research and Development)

AFI 61-105, *Planning for Science and Technology*.

AFI 61-202, *Air Force Technical Publications Program*. Provides rules for writing, processing, distributing and publishing technical publications generated in-house or by contract (Replaces AFR 83-2).

AFPD 63-1, *Acquisition System*.

AFI 63-101, *Acquisition System*.

AFI 63-107, *Integrated Weapons System Management Program Planning and Assessment*. IWSM explained.

AFPD 99-1, *Test and Evaluation Process*. This regulation outlines policy for test and evaluation activities during the development, production and deployment of systems. Assign responsibilities to the implementing command, AFOTEC, operating command and the

supporting command (Replaces AFR 80-14 and is supplemented by AFI 99-109 *Test Resource Planning*).

AFI 99-101, *Developmental Test and Evaluation*.

AFI 99-102, *Operational Test and Evaluation*.

AFI 99-106, *Joint Test and Evaluation*.

AFI 99-109, *Test Resource Planning*.

AFP 105-34 (Superseded), *Aircraft Performance Characteristics and Weather Sensitivities*. Describes the performance characteristic and some of the weather sensitivities of some operational USAF aircraft (Replaces AWSP 55-1). This information may be published in an Air Force Handbook (AF HDBK 15-XXX).

AFP 172-4, *The Air Force Budget Process*.

AFMCP 800-3, *A Guide for Program Management*. Describes the general considerations involved in managing the acquisition of a system (To be replaced by AF Sup 1 to DODI 5000.2).

AFMC DH 1-5, *AFSC Design Handbook, Environmental Engineering*. This handbook provides system designers with environmental engineering criteria applicable to aerospace vehicles, vehicle equipment and associated ground equipment. It includes material on natural environment facts and environments and environmental effects.

PLEXIS (Phillips Laboratory Expert-Assisted User Software)USER'S GUIDE. This guide documents the some of the Atmospheric Models available to characterize the atmosphere.

RCC Document 381-92, *Meteorological Measurements Guide*. Identifies techniques of measurement for various atmospheric phenomena.

RCC Range Reference Atmospheres. Provides sample and standard atmospheric profiles for various US Army and US Air Force test range locations.

AWS Station Climatic Summaries (Climatic Briefs).

Theater Climatic Files. CD summaries for various worldwide areas from AFCCC.

International Station Meteorological Climate Summary. CD summary prepared by Federal Climate Complex Asheville.

Various Climatic Summaries. Developed by AFCCC, Asheville NC.

AWSMD 5202, *AFGWC Mission Directive*. Describes mission and products and services provided by AFGWC.

AWSMD 5203, *USAFETAC Mission Directive*. Describes mission and products and services provided by Combat Climatology Center (formerly USAFETAC).

AWSMD 5204, *Combat Weather Facility Mission Directive*. Describes mission and products and services provided by Combat Weather Center (formerly CWF).

AWS/TR-79/002, *Electro-Optical Handbook, Vol 1--Weather Support for Precision Guided Munitions*.

AWS/TN-87/003, *Weather Sensitivities of E-O Systems*.

AFWAL-TR-85-1186, *Comparative Analysis of Atmospheric Extinction at Visible, Infrared, and Millimeter Wavelengths*.

AR 70-38, *Research, Development, Test and Evaluation of Material for Extreme Climatic Conditions*. Provides policies, responsibilities and planning guidance for realistic consideration of climatic conditions in the research, development, test, and evaluation of materials used in combat by the US Army.

NAVAIR 50-10-534, *Guide to Standard Weather Summaries and Climatic Services*. Provides information source of published and unpublished climatological summaries produced by NCDC, US Navy and US Air Force.

NAVAIR 50-1C-1/AWS TR-89/001, *Joint US Navy/US Air Force Climatic Study of the Upper Atmosphere*.

NORDA TN 355, *Oceanic Extremes for Designing Military Equipment*. This is a supplement to Mil Std 210 for the ocean and near ocean environment.

AFGL Handbook of Geophysics and Space Environment. Provides extensive collection of data, formulas and scientific discussions on environmental phenomena concerning the atmosphere, ionosphere, planetary and interplanetary space.

ETL-0416, *World Weather Extremes*. Worldwide maps of weather extremes. (US Army Topographic Engineering Laboratory)

ALBE Report 1, *Environmental Factors and Standards for Atmospheric Obscurants, Climate and Terrain*. Report describes climatic, terrain, and atmospheric obscurant environmental factors that affect the Army's capability to carry out it's mission on the modern battlefield.

Weather Sensitivities Handbook. Handbook published by ASC Staff Meteorologists at Wright-Patterson AFB. This collection of information by ASC and Wright Research Site Staffmets provides useful data in chapters titled: Environmental Sensitivities of Weapons System Components and Technologies, Atmospheric Elements Affecting Weapons System Design and Performance, Climatology and Environmental Simulations, Atmospheric Effects on Army Operations, and Space Environmental Considerations.

Appendix 7

AFMC STAFFMET WEATHER UNITS

1. Aeronautical Systems Center and AFRL (88th Weather Squadron) @ Wright-Patterson AFB

Provides operational Base Weather Station support to Wright-Patterson AFB and geographically separated guard and reserve units. Provides meteorological consultation services to the Systems Acquisition Mission Unit at Aeronautical Systems Center (ASC) and the Wright-Patterson research site of the Air Force Research Laboratory (AFRL). ASC and AFRL research, develop, test, evaluate, and initially acquire aeronautical and related systems for the Air Force.

2. Air Force Development Test Center (AFDTC) (46th Weather Squadron) @ Eglin AFB

Provides operational weather support to Eglin AFB and assigned units. Provides meteorological consultation services for the Air Force Development Test Center (AFDTC), the Armament Directorate of AFRL and units of ASC at Eglin AFB.

3. Electronic Systems Center (ESC) (ESC/DIAW) @ Hanscom AFB

Provides meteorological consultation services to the ESC at Hanscom AFB. ESC develops, tests, evaluates, and acquires command and control systems for the Air Force.

4. Rome Research Site (AFRL/IFO-WE) @ Rome NY

Provides meteorological consultation services to the Rome Site of the AFRL, which is AFMC's center for research and development of command, control, communications, computers, and intelligence (C4I).

5. Phillips Research Site (AFRL/VSBE) @ Hanscom AFB

Provides research and consultation advice and services to the AFRL research site at Hanscom AFB. This research site is the Air Force's single focal point for all space and missile related research and technology.

6. Space and Missile Systems Center (SMC) (SMC/AXEW) @ Los Angeles AFB

Provides meteorological consultation services to SMC, which is the Air Force center for the design and acquisition of space and missile systems. SMC is also responsible for the on-orbit checkouts of satellites after launch.

7. Armstrong Research Site (Det 1, HSC/OEBQ) @ Brooks AFB

Provide meteorological consultation services to the Human Systems Center and the Brooks Site of AFRL, which is the Air Force center for aerospace medicine, environmental remediation and compliance, and human resources development.

8. Air Force Flight Test Center (AFFTC) 412OSS/OSW @ Edwards AFB

Provides operational base weather station support to Edwards AFB as well as support to space shuttle landings. Provides meteorological consultation services to the Air Force Development Test Center, AFRL activities at Edwards AFB and the Air Force Test Pilots School.

9. Phillips Research Site (AFRL/DES) @ Kirtland AFB

Provides meteorological consultation services to the Kirtland Research site of AFRL, this organization is responsible for Air Force research and development in space and missile technology, lasers and imaging systems, advanced weapons and survivability and space experiments. The office also supports the Airborne Laser (ABL) Program Office.

10. 846TS/TGTPW @ Holloman AFB

Provides meteorological consultation services to the 46th Test Group, which operates the Air Force's rocket sled test track.

11. Tyndall Research Site (AFRL/MLQ) @ Tyndall AFB

Provides meteorological consultation services to the Environmental Risk Assessment and Environmental Research divisions of AFRL's Materials & Manufacturing Directorate at Tyndall AFB.

12. Air Force Office of Scientific Research (AFOSR/NM) @ Bolling AFB

Manages and directs the environmental and geophysical sections of the basic science and engineering research programs of the Air Force. This includes grants and contracts with universities and industrial firms as well as efforts at AFRL.

AFMC STAFFMET LOCATIONS

